



FIG. 1

DNA SEQUENCE FOR HUMAN PREPROPARATHYROID HORMONE

10 30 50
ATGATHCCNGCNAARGAYATGGCNAARGTNATGATHGTNATGYTNGCNATHTGYTTYTN

70 90 110
ACNAARWSNGAYGGNAARWSNGTNAARAARMGNWSNGTNWSNGARATHCARYTNATGCAY

130 150 170
AAYYTNGGNAARCAYYTNAAYWSNATGGARMGNGTNGARTGGYTNGMNAARAARYTNCAR

190 210 230
GAYGTNCAYAAYTTYGTNGCNYTNGGNGCNCNYTNGCNCNMGNAYGCNGGNWSNCAR

250 270 290
MGNCNMGNARAARGARGAYAAYGTNYTNGTNGARWSNCAYGARAARWSNYTNGGNGAR

310 330
GCNGAYAARGCNGAYGTNAAYGTNYTNACNAARGCNAARWSNCARTR

M = A OR C

R = A OR G

W = A OR T

S = C OR G

Y = C OR T

H = A OR C OR T

N = A OR G OR C OR T



**TITLE: Production Of Human Parathyroid
From Microorganisms**
INVENTOR: KAARE M. GAUTVIK *et al.*
SERIAL NO. 09/668,154
SHEET 2, FIGURE 2

FIG. 2

**DNA SEQUENCE FOR HUMAN
PREPROPARATHYROID HORMONE IN PLASMID pSSHPTH-10**

10	30	50
TATGATGATACCTGCAAAAGACATGGCTAAAGTTATGATTGTCATGTTGGCAATTTGTTT		
70	90	110
TCTTACAAAATCGGATGGGAAATCTGTTAAGAAGAGATCGTGGAGTGAAATACAGCTTAT		
130	150	170
GCATAACCTGGGAAAACATCTGAACTCGATGGAGAGAGTAGAATGGCTGCGTAAGAAGCT		
190	210	230
GCAGGATGTGCACAATTTTGTGGCCCTTGGAGCTCCTCTAGCTCCCAGAGATGCTGGTTC		
250	270	290
CCAGAGGCCCCGAAAAAAGGAAGACAATGTCTTGGTTGAGAGCCATGAAAAAAGTCTTGGA		
310	330	
GAGGCAGACAAAGCTGATGTGAATGTATTAATAAGCTAAATCCCAGTGA		



FIG.3

PORTION OF DNA SEQUENCE OF THE PLASMID
FOR INSERTION INTO E. COLI, CODING FOR HUMAN
PREPROPARATHYROID HORMONE WITH FLANKING SEQUENCES.

```
      10              30              50
TATGATGATHCCNGCNAARGAYATGGCNAARGTNATGATHGTNATGYTNGCNATHTGYTT

      70              90              110
YYTNACNAARWSNGAYGGNAARWSNGTNAARAARMGNWSNGTNWSNGARATHCARYTNAT

      130             150             170
GCAYAAYYTNGGNAARCAYYTNAAYWSNATGGARMGNGTNGARTGGYTNGMNAARAARYT

      190             210             230
NCARGAYGTNCAYAAYTTYGTNGCNYTNGGNGCNCNYTNGCNCNMGNAYGCNGGNWS

      250             270             290
NCARMGNCCNMGNAARAARGARGAYAAYGTNYTNGTNGARWSNCAYGARAARWSNYTNGG

      310             330             350
NGARGCNGAYAARGCNGAYGTNAAYGTNYTNACNAARGCNAARWSNCARTRRAAATGAAA

      370             390             410
ACAGATATTGTCAGAGTTCTGCTCTAGACAGTGTAGGGCAACAATACATGCTGCTAATTC

      430
AAAGCTCTATTA
```

M = A OR C

R = A OR G

W = A OR T

S = C OR T

Y = C OR T

H = A OR C OR T

N = A OR G OR C OR T



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SHEET 4, FIGURE 4

FIG. 4

DNA SEQUENCE OF FOR HUMAN PREPROPARATHYROID
HORMONE IN PLASMID pSSHPTH-10 WITH FLANKING SEQUENCES.

```
      10              30              50
TATGATGATACCTGCAAAAGACATGGCTAAAGTTATGATTGTCATGTTGGCAATTTGTTT

      70              90              110
TCTTACAAAATCGGATGGGAAATCTGTTAAGAAGAGATCTGTGAGTGAAATACAGCTTAT

      130             150             170
GCATAACCTGGGAAAACATCTGAACTCGATGGAGAGAGTAGAATGGCTGCGTAAGAAGCT

      190             210             230
GCAGGATGTGCACAATTTTGTGGCCCTTGGAGCTCCTCTAGCTCCCAGAGATGCTGGTTC

      250             270             290
CCAGAGGCCCCGAAAAAAGGAAGACAATGTCTTGTTGAGAGCCATGAAAAAGTCTTGG

      310             330             350
AGAGGCAGACAAAGCTGATGTGAATGTATTAAGCTAAATCCCAGTGAAAATGAAA

      370             390             410
ACAGATATTGTCAGAGTTCTGCTCTAGACAGTGTAGGGCAACAATACATGCTGCTAATTC

      430
AAAGCTCTATTA
```

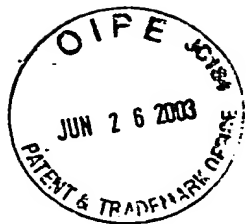


FIG. 5

DNA SEQUENCE CODING FOR PREPROPARATHYROID HORMONE
IN pSSHPTH-10 WITH FLANKING SEQUENCES, SHOWING
THE CORRESPONDING AMINO ACID SEQUENCE OF
PREPROPARATHYROID HORMONE

```

      10              30              50
TATGATGATACCTGCAAAAGACATGGCTAAAGTTATGATTGTCATGTTGGCAATTTGTTT
  MetIleProAlaLysAspMetAlaLysValMetIleValMetLeuAlaIleCysPh
      70              90              110
TCTTACAAAATCGGATGGGAAATCTGTTAAGAAGAGATCTGTGAGTGAAATACAGCTTAT
eLeuThrLysSerAspGlyLysSerValLysLysArgSerValSerGluIleGlnLeuMe
      130             150             170
GCATAACCTGGGAAAACATCTGAACTCGATGGAGAGAGTAGAATGGCTGCGTAAGAAGCT
tHisAsnLeuGlyLysHisLeuAsnSerMetGluArgValGluTrpLeuArgLysLysLe
      190             210             230
GCAGGATGTGCACAATTTTGTGGCCCTTGGAGCTCCTCTAGCTCCCAGAGATGCTGGTTC
uGlnAspValHisAsnPheValAlaLeuGlyAlaProLeuAlaProArgAspAlaGlySe
      250             270             290
CCAGAGGCCCCGAAAAAAGGAAGACAATGTCTTGGTTGAGAGCCATGAAAAAAGTCTTGG
rGlnArgProArgLysLysGluAspAsnValLeuValGluSerHisGluLysSerLeuGl
      310             330             350
AGAGGCAGACAAAGCTGATGTGAATGTATTAAGCTAAAGCTAAATCCCAGTAAAAATGAAA
yGluAlaAspLysAlaAspValAsnValLeuThrLysAlaLysSerGlnEnd
      370             390             410
ACAGATATTGTCAGAGTTCTGCTCTAGACAGTGTAGGGCAACAATACATGCTGCTAATTC
      430
AAAGCTCTATTA
```



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SHEET 6, FIGURE 9A

FIG. 9A

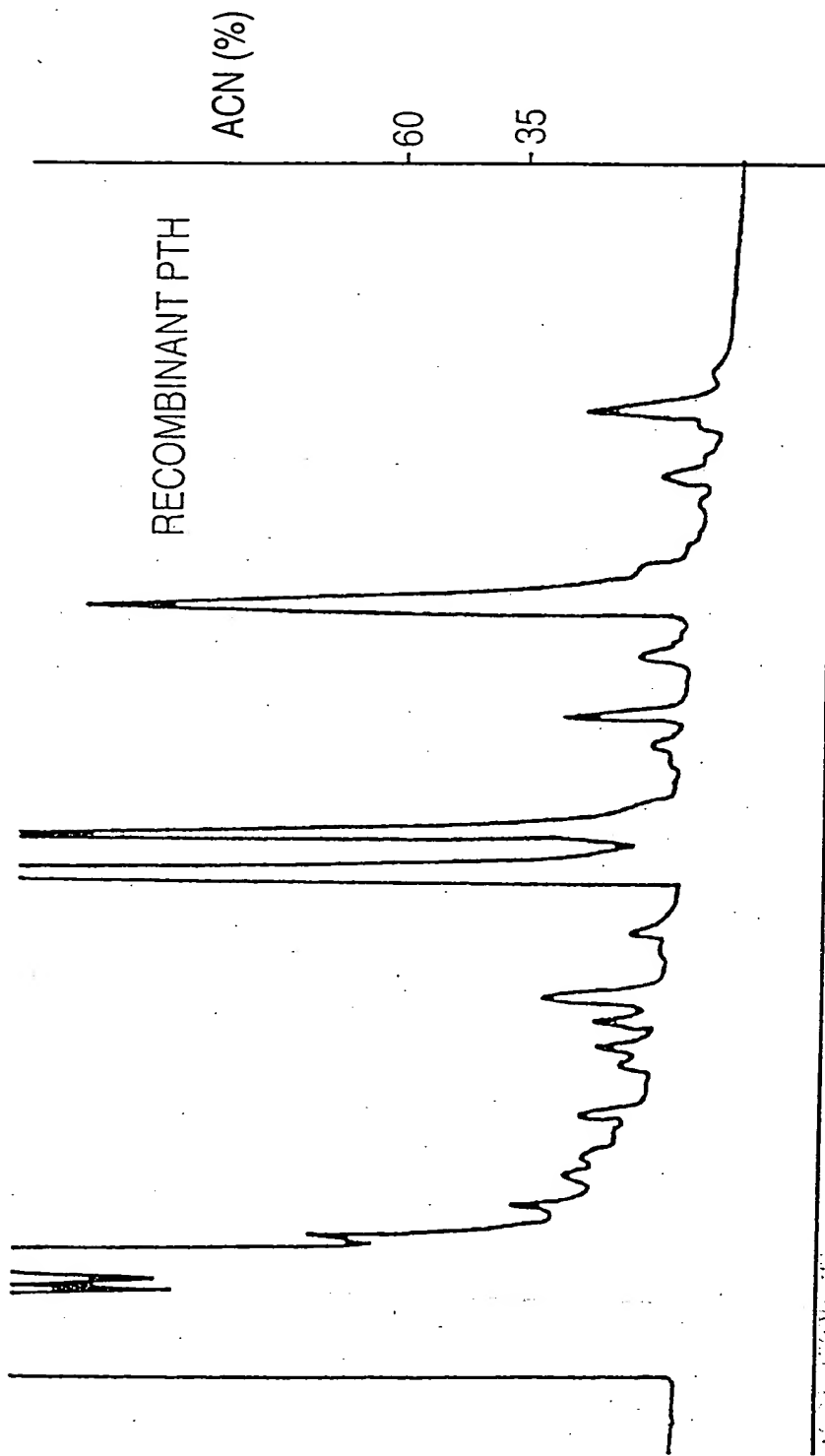
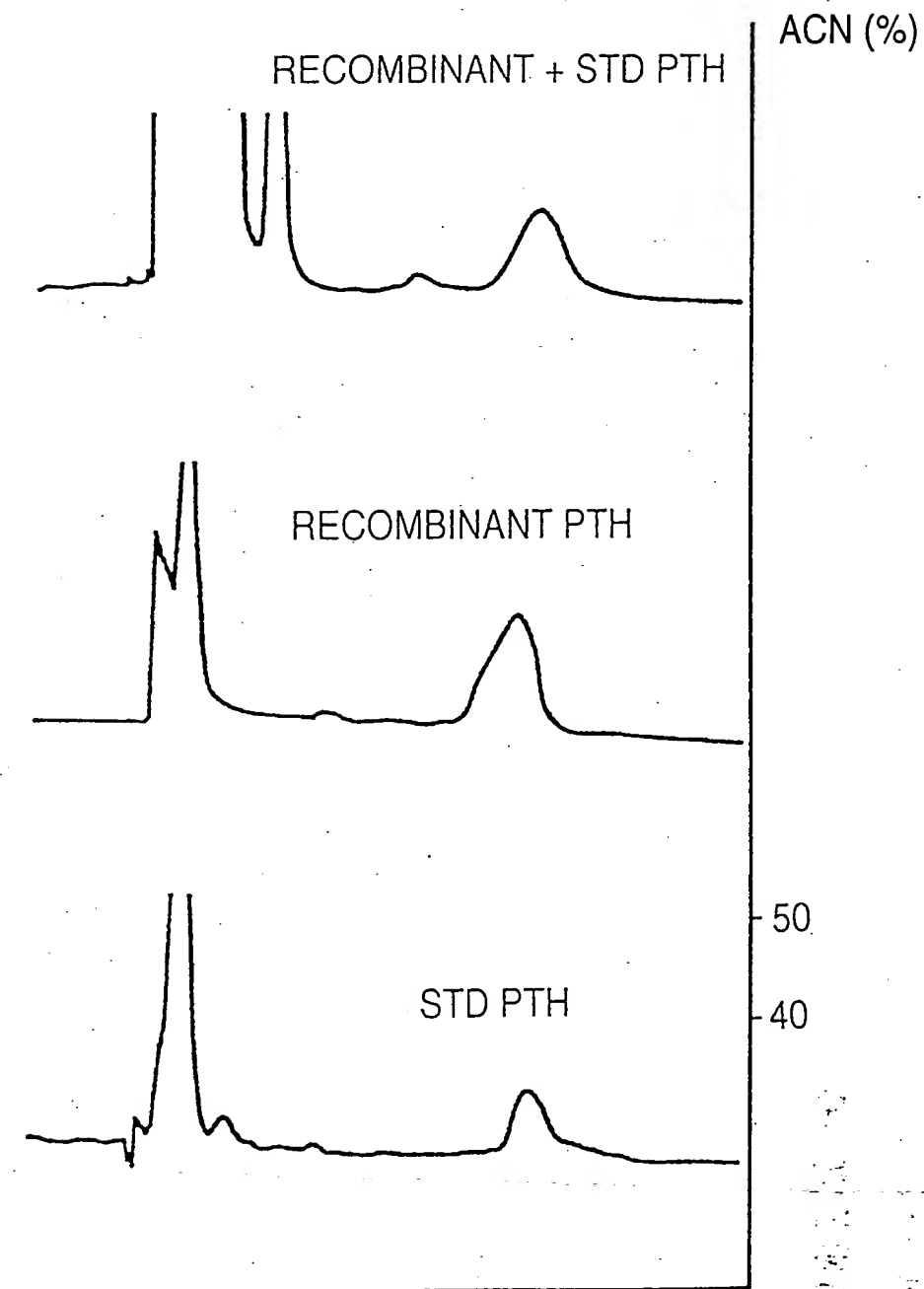




FIG. 9B



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FIG. 10A

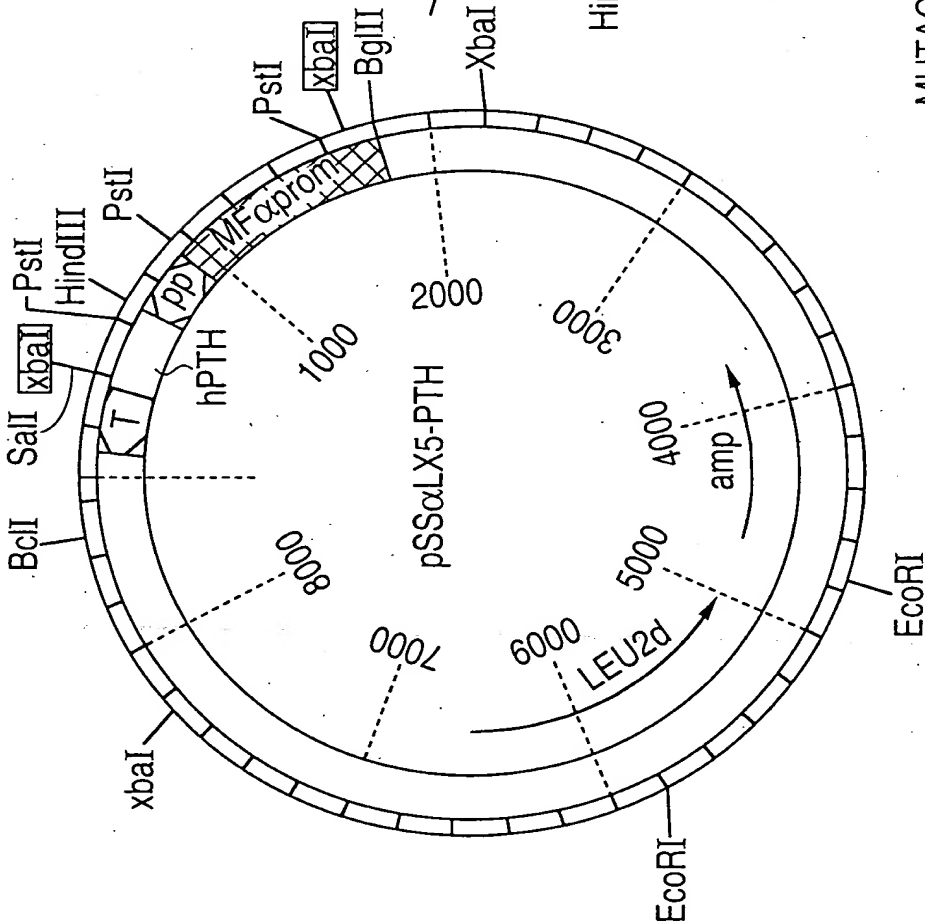


FIG. 10B

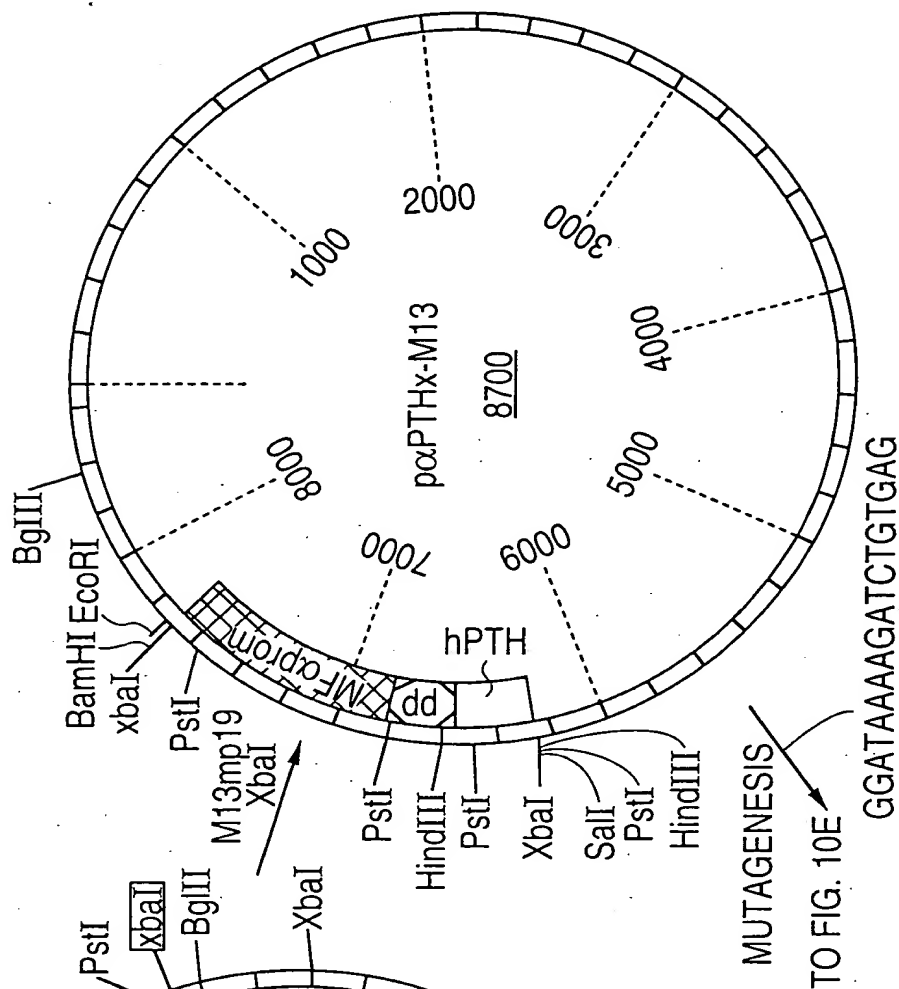




FIG. 10C

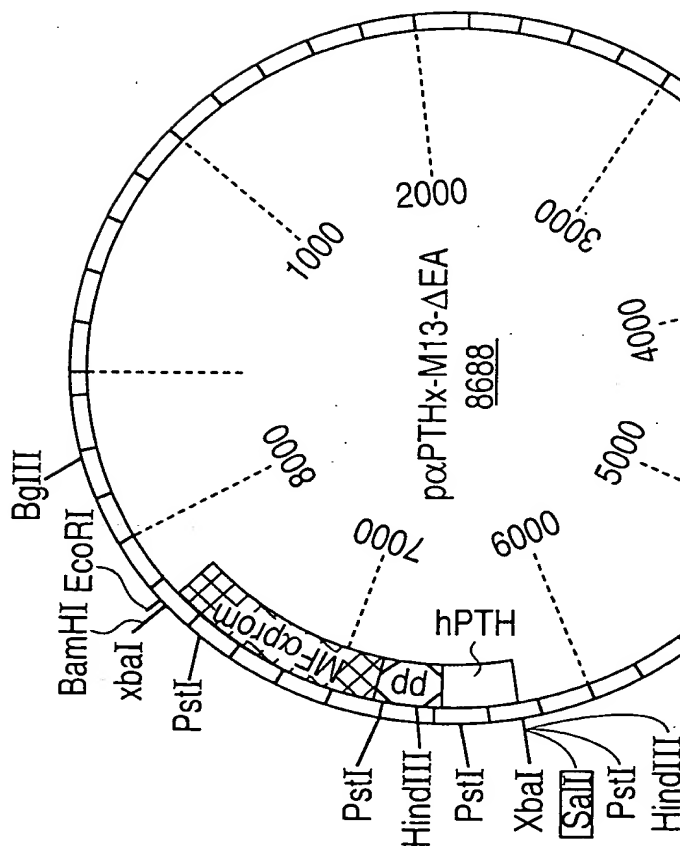


FIG. 10D

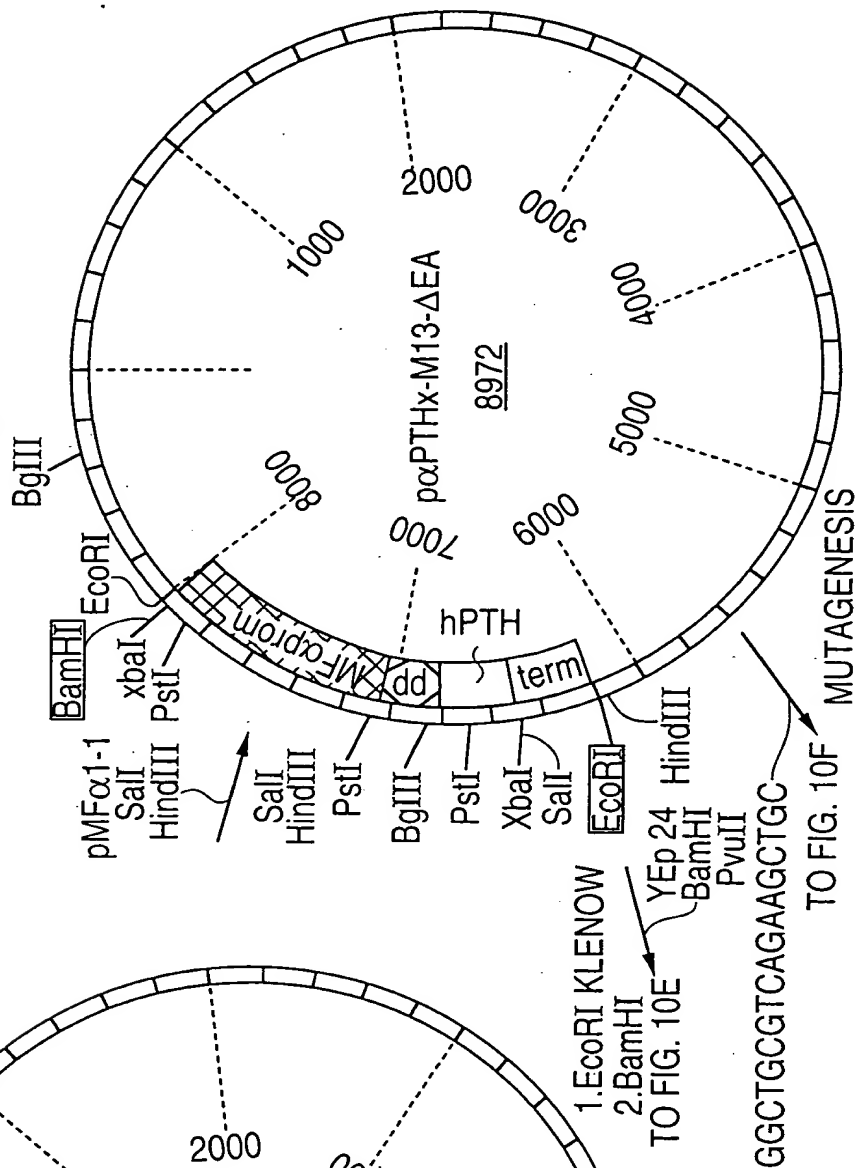


FIG. 10F

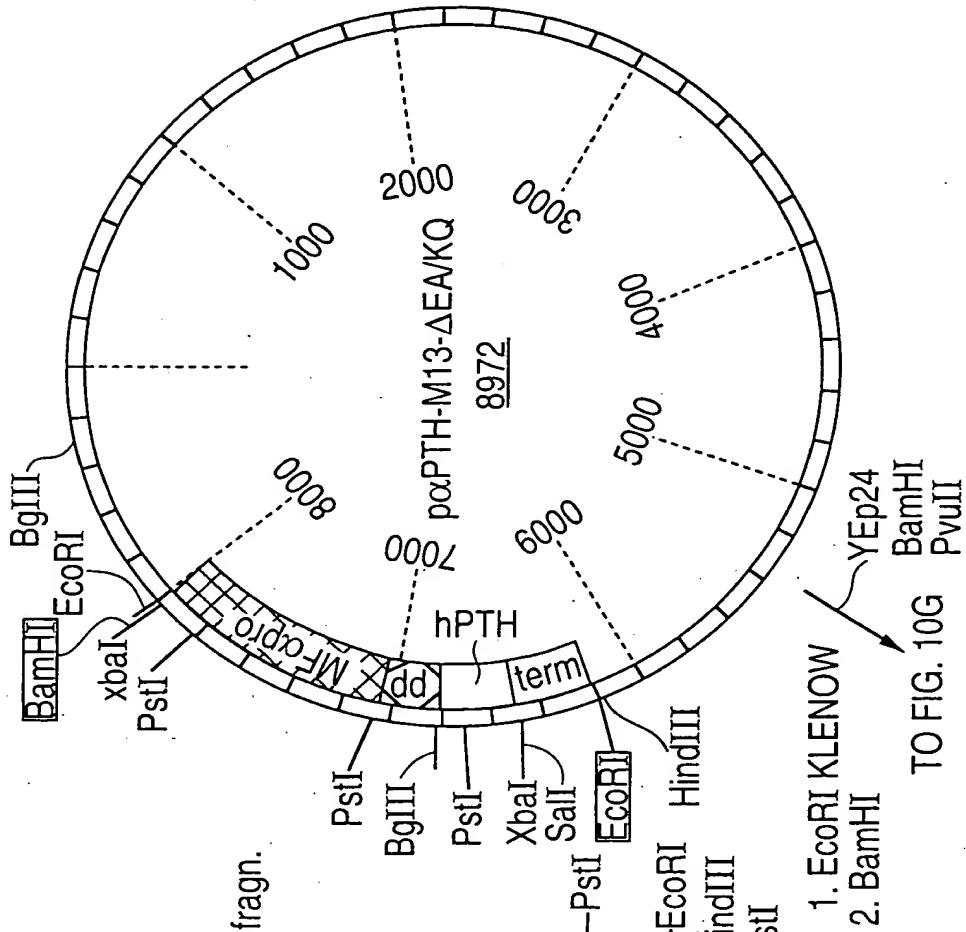
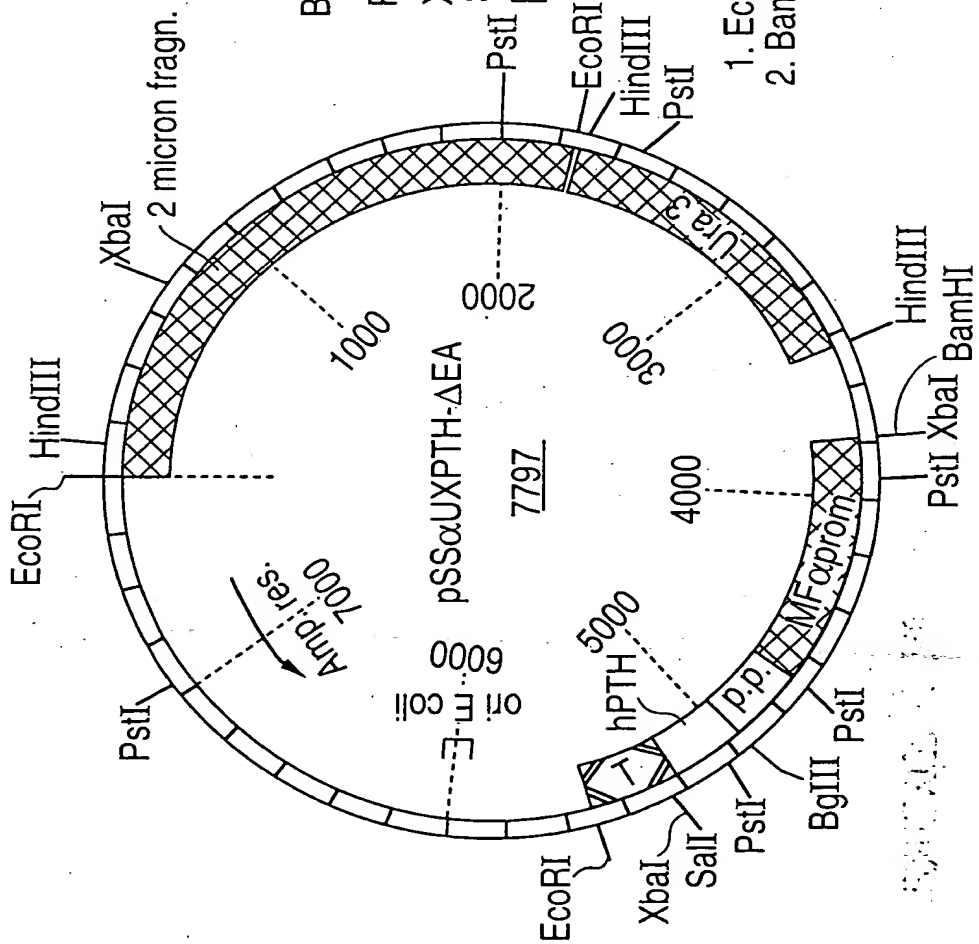


FIG. 10E



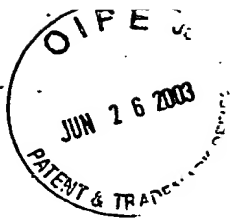
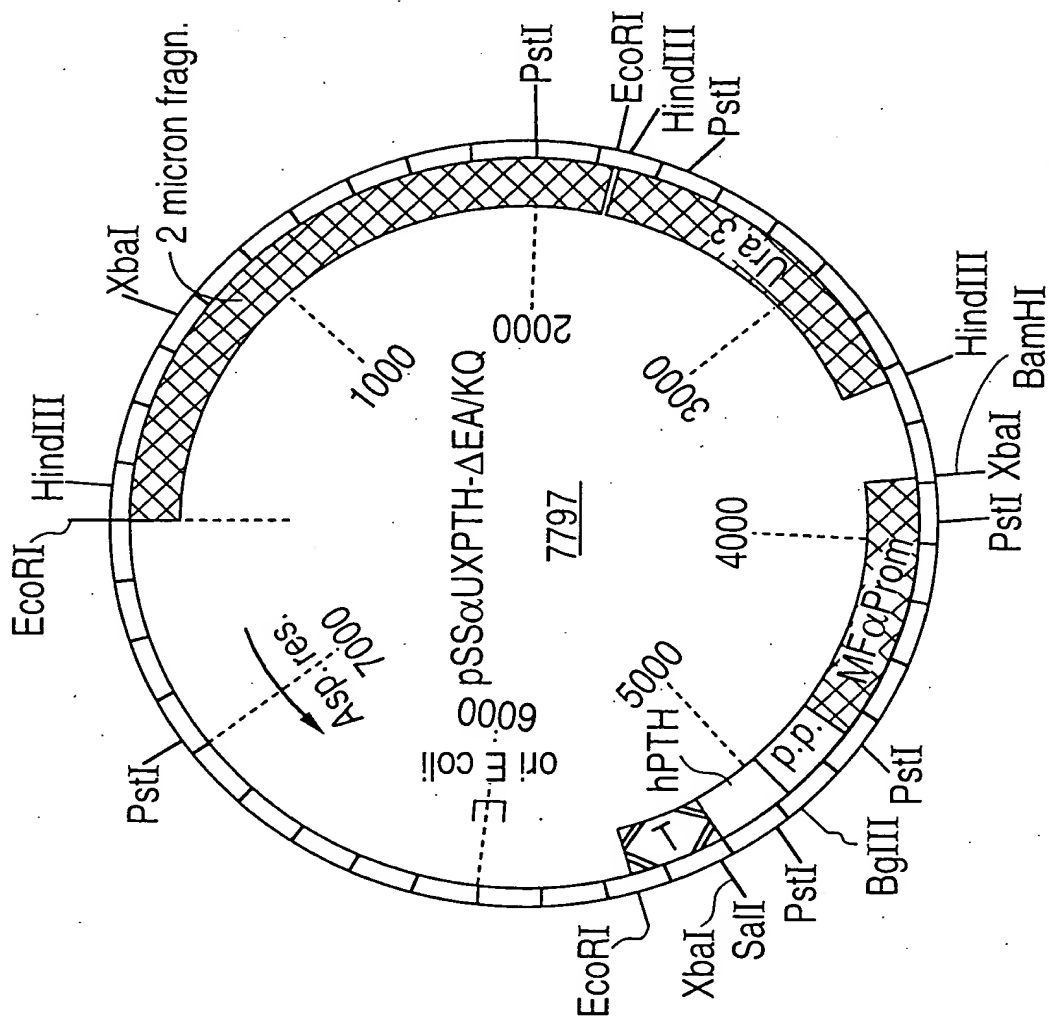


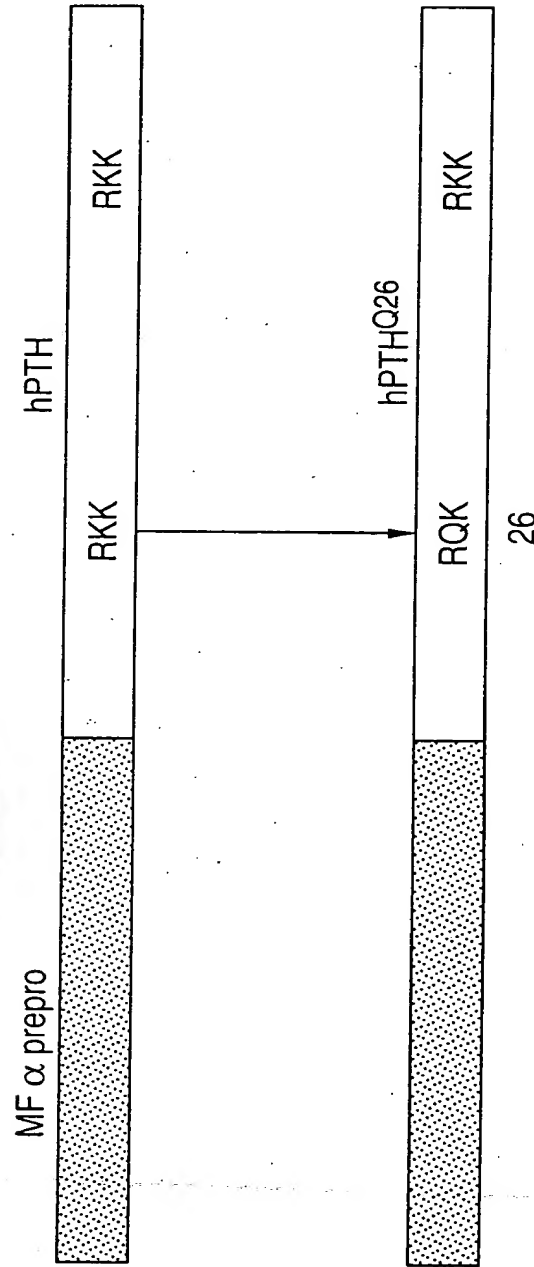
FIG. 10G



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FIG. 11

IN vitro MUTAGENESIS OF hPTH





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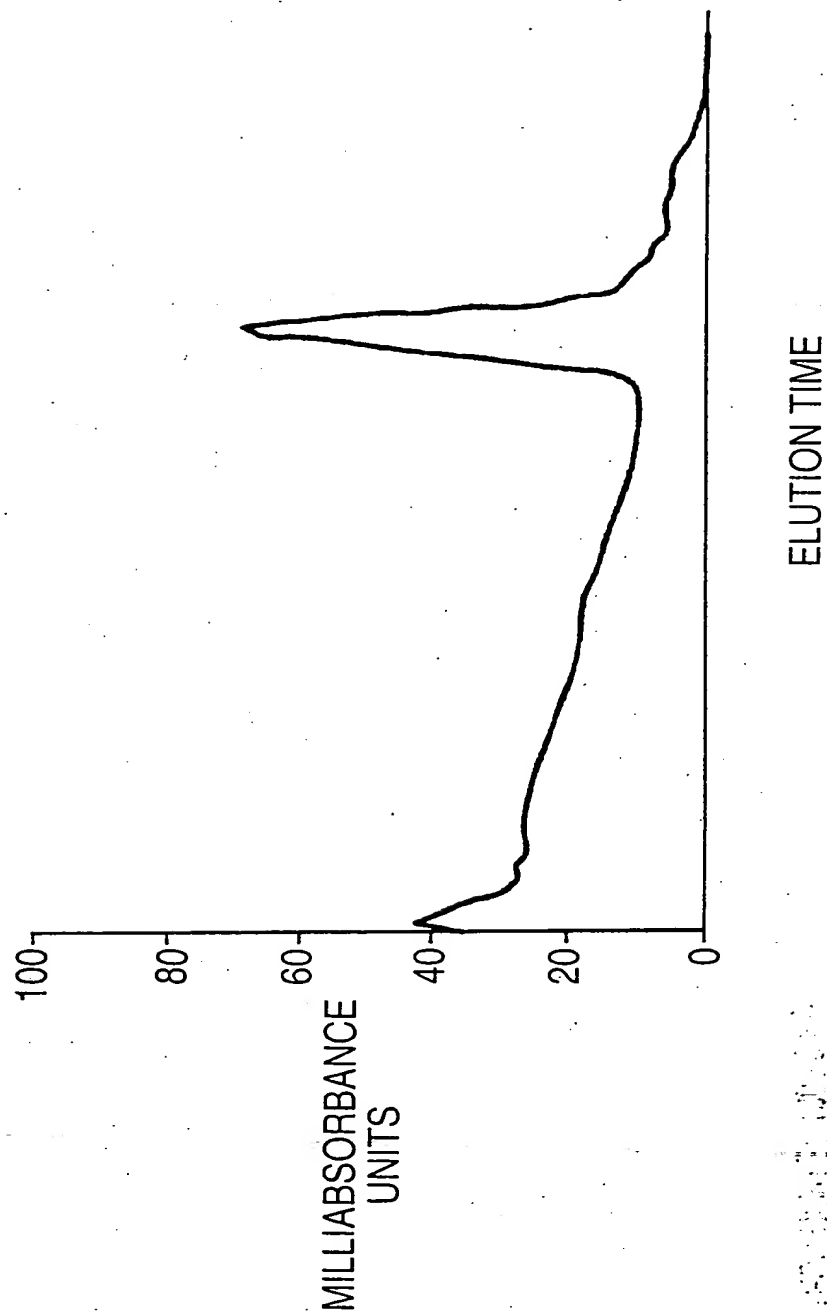
INVENTOR: KAARE M. GAUTVIK, et al.

SERIAL NO. 09/668,154

SHEET 13, FIGURE 13A

FIG. 13A

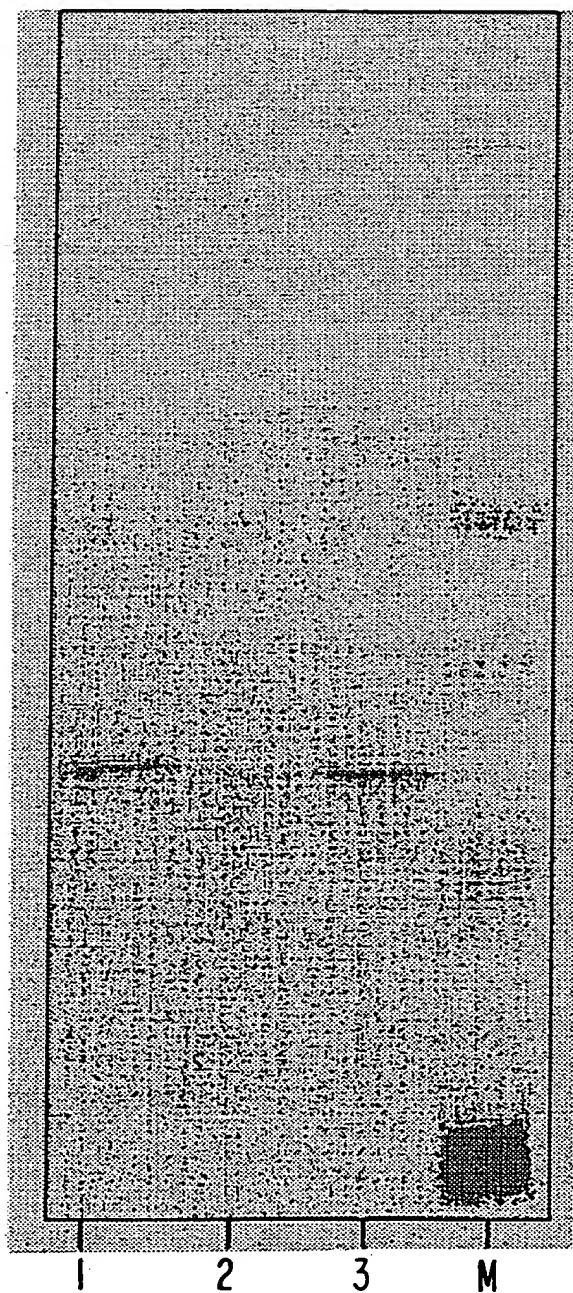
HPLC CHROMATOGRAM OF hPTH (Q26)

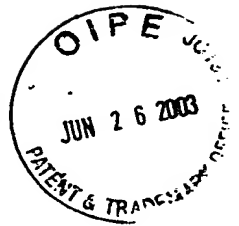




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SHEET 14, FIGURE 13B

FIG. 13B





TITLE: Production Of Human Parathyroid
From Microorganisms
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SERIAL NO. 09/668,154
SHEET 15, FIGURE 14

FIG. 14

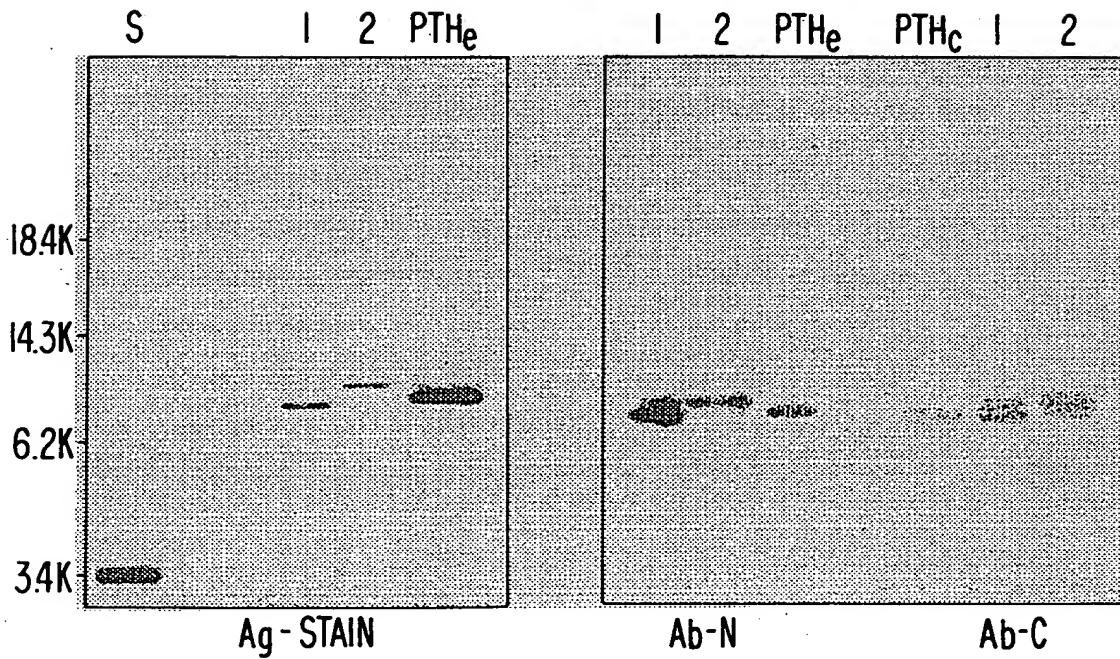




FIG. 15

